

In the Claims

1 1. (currently amended) A method for fault diagnosis of a data network
2 comprising:
3 a) receiving a plurality of fault data pertaining to said data network;
4 b) filtering said plurality of fault data to obtain a core of fault data;
5 i) ~~requesting additional fault data from querying said data network to~~
6 generate additional fault data different from said plurality of fault data when
7 said core of fault data is insufficient to identify faults;
8 ii) receiving said additional fault data; and
9 c) analyzing said core of fault data and said additional fault data to
10 identify a fault associated with said core of fault data ~~without requiring~~
11 ~~historical data about said data network.~~

1 2. (original) The method for fault diagnosis as described in Claim 1, wherein
2 b) comprises:
3 implementing a set of rules for filtering said plurality of fault data.

1 3. (original) The method for fault diagnosis as described in Claim 1, wherein
2 b) comprises:
3 eliminating redundant fault data in said plurality of fault data to obtain
4 said core of fault data.

1 4. (original) The method for fault diagnosis as described in Claim 1, wherein
2 said b) comprises:
3 b1) correlating said plurality of fault data into recognized patterns of
4 data comprising said core of fault data.

1 5. (original) The method for fault diagnosis as described in Claim 1 wherein
2 said plurality of fault data is taken from a group consisting of:
3 alarms;
4 events;
5 remote monitoring (RMON) - 1 data; and
6 RMON - 2 data.

1 6. (original) The method for fault diagnosis as described in Claim 1, wherein
2 c) further comprises:
3 determining whether said fault is due to a broken link or congestion in
4 said data network.

1 7. (original) The method for fault diagnosis as described in Claim 6, further
2 comprising:
3 implementing a ping walk through said data network to determine a
4 location of said broken link, if said fault is due to said broken link.

1 8. (original) The method for fault diagnosis as described in Claim 6, further
2 comprising:
3 isolating a source of said fault, if said fault is due to said congestion in
4 said data network.

1 9. (original) The method of fault diagnosis as described in Claim 1, further
2 comprising:
3 displaying network location of said fault; and
4 displaying a cause of said fault.

1 10. (original) The method of fault diagnosis as described in Claim 1,
2 wherein said fault data includes performance data from said data network.

1 11. (currently amended) A method of fault diagnosis comprising:
2 a) receiving a plurality of fault data pertaining to said data network;
3 b) filtering said plurality of fault data to eliminate extraneous data
4 down to a core of fault data;
5 i) ~~requesting additional fault data from querying said data network to~~
6 ~~generate additional fault data different from said plurality of fault data when~~
7 ~~said core of fault data is insufficient to identify faults;~~
8 ii) receiving said additional fault data;
9 c) determining whether said core of fault data and said additional fault
10 data is due to a broken link or congestion in said data network ~~without~~
11 ~~requiring historical data about said data network;~~
12 d) performing a ping walk to isolate ~~a cause and~~ a source of said core
13 of fault data and additional fault data and to determine a location of said
14 source, if said core of fault data and additional fault data is due to said
15 broken link; and
16 e) using deductive reasoning to isolate said source of said core of fault
17 data and additional fault data and identify said cause of said core of fault
18 data and additional fault data, if said core of fault data and additional fault
19 data is due to said congestion.

1 12. (original) The method for fault diagnosis as described in Claim 11,
2 wherein b) comprises:
3 eliminating redundant fault data in said plurality of fault data to obtain

4 said core of fault data.

1 13. (original) The method for fault diagnosis as described in Claim 11,
2 wherein b) comprises:

3 bl) correlating said plurality of fault data into a recognized pattern of
4 data forming said core of fault data.

1 14. (original) The method for fault diagnosis as described in Claim 11,
2 wherein d) comprises:

3 sending a ping signal to each of a plurality of addresses in said data
4 network;
5 determining which addresses are unreachable; and
6 comparing a network topology to unreachable addresses to determine
7 a location of said broken link in said data network.

1 15. (original) The method for fault diagnosis as described in Claim 11,
2 wherein e) comprises:

3 el) monitoring said data network to determine traffic data; and
4 e2) analyzing said traffic data using said deductive reasoning to
5 isolate said source and identify said fault.

1 16. (original) The method for fault diagnosis as described in Claim 15,
2 wherein el) comprises:

3 determining queue length in network devices;
4 determining delay over a path in said data network; and
5 determining load of traffic over said data network.

1 17. (original) The method of fault diagnosis as described in Claim 11,
2 further comprising:

3 querying said data network for additional fault data if said core of
4 fault data is insufficient to identify said fault.

1 18. (original) The method of fault diagnosis as described in Claim 11,
2 further comprising:

3 correcting said fault.

1 19. (currently amended) A data network that is capable of fault diagnosis
2 comprising:

3 a plurality of subnetworks that generate a plurality of fault data, each
4 of said plurality of subnetworks comprising network components that are
5 coupled together via a distributing component;

6 a plurality of performance managers coupled to said plurality of
7 subnetworks for monitoring said plurality of subnetworks for said plurality
8 of fault data, for filtering said plurality of fault data, and for ~~requesting~~
9 querying said plurality of subnets to generate additional fault data different
10 from said plurality of fault data when said plurality of fault data is
11 insufficient to identify faults, each of said plurality of network performance
12 managers coupled to and associated with one of said plurality of
13 subnetworks; and

14 a single network management station coupled to each of said plurality
15 of performance managers for analyzing said plurality of fault data that is
16 filtered and said additional fault data to identify faults and isolate sources of
17 said faults, ~~without requiring historical data about said data network~~.

- 1 20. (original) The data network as described in Claim 19, wherein said
- 2 network components are computer systems.

- 1 21. (original) The data network as described in Claim 19, wherein said
- 2 distributing component is a switch.

- 1 22. (original) The data network as described in Claim 19, wherein said
- 2 plurality of fault data is management information base (MIB) information
- 3 that is generated by said network components and said distributing
- 4 component in each of said plurality of subnetworks.

- 1 23. (previously presented) The data network as described in Claim 19,
- 2 further comprising:
 - 3 a rule set that is implemented by said network management station for
 - 4 analyzing said plurality of fault data and said additional fault data that are
 - 5 filtered to identify said faults and isolate said sources of said faults.

- 1 24. (previously presented) The data network as described in Claim 19,
- 2 further comprising:
 - 3 a rule set that is implemented by each of said plurality of performance
 - 4 managers for filtering said plurality of fault data and said additional fault
 - 5 data.

- 1 25. (original) The data network as described in Claim 19, wherein said
- 2 plurality of fault data includes performance data from said data network.

1 26. (original) The data network as described in Claim 19, wherein each of
2 said plurality of performance managers is a self diagnosing network
3 performance manager (SDNNPM).

1 27. (currently amended) A computer system comprising:
2 a processor;
3 a display coupled to said processor;
4 a computer readable memory coupled to said processor and containing
5 program instructions that, when executed, implement ~~a method for fault~~
6 ~~diagnosis of a data network comprising the steps of:~~
7 a) receiving a plurality of fault data pertaining to said data network;
8 b) filtering said plurality of fault data to obtain a core of fault data;
9 i) ~~requesting additional fault data from querying~~ said data network to
10 generate additional fault data different from said plurality of fault data when
11 said core of fault data is insufficient to identify faults;
12 ii) receiving said additional fault data; and
13 c) analyzing said core of fault data and said additional fault data to
14 identify a fault associated with said core of fault data ~~without requiring~~
15 ~~historical data about said data network.~~

1 28, (original) The computer system as described in Claim 27, wherein b) in
2 said method comprises:
3 implementing a set of rules for filtering said plurality of fault data.

1 29. (original) The computer system as described in Claim 27, wherein b) in
2 said method comprises:
3 eliminating redundant fault data in said plurality of fault data to obtain

1 said core of fault data.

1 30. (original) The computer system as described in Claim 27, wherein b) in
2 said method comprises:

3 b1) correlating said plurality of fault data into recognized patterns of
4 data comprising said core of fault data.

1 31. (original) The computer system as described in Claim 27, wherein said
2 plurality of fault data is taken from a group consisting of:

3 alarms;

4 events;

5 remote monitoring (RMON) - 1 data; and

6 RMON - 2 data.

1 32. (original) The computer system as described in Claim 27, wherein c) in
2 said method further comprises:

3 determining whether said fault is due to a broken link or congestion in
4 said data network.

1 33. (original) The computer system as described in Claim 32, wherein said
2 method further comprises:

3 implementing a ping walk through said data network to determine a
4 location of said broken link, if said fault is due to said broken link.

1 34. (original) The computer system as described in Claim 32, wherein said
2 method further comprises:

3 isolating a source of said fault, if said fault is due to said congestion in

1 said data network.

1 35. (original) The computer system as described in Claim 27, wherein said
2 method further comprises:

3 displaying network location of said fault; and
4 displaying a cause of said fault.

1 36. (original) The computer system as described in Claim 27, wherein said
2 fault data includes performance data from said data network.